REMARKS

The Office Action dated November 15, 2007 has been received and carefully noted. The above amendments to the claims, and the following remarks, are submitted as a full and complete response thereto.

Claims 1, 4-6, and 8-13 have been amended to more particularly point out and distinctly claim the subject matter of the invention. No new matter has been added. Therefore, claims 1-13 are currently pending in the application and are respectfully submitted for consideration.

The Office Action rejected claims 1-13 under 35 U.S.C. § 103(a) as being unpatentable over U.S. Patent No. 6,813,256 ("Nevo"), in view of U.S. Patent No. 6,987,780 ("Wei"). The Office Action took the position that Nevo discloses all the elements of the claims with the exception of "purging the packet data units from said retransmission buffer based on said received status reports," and "scheduling remaining packet data units in said retransmission buffer for transmission to said second base station, and transmitting said scheduled remaining packet data units to said second base station," as recited in claim 1, and similarly recited in claims 5, 9, and 13. The Office Action then cited Wei as allegedly curing the deficiencies of Nevo. (see e.g. Office Action at page 3 discussing claim 1). The rejection is respectfully traversed for at least the following reasons.

Claim 1, upon which claims 2-4 are dependent, recites a method, which includes transmitting packet data units for unacknowledged mode services in a handover between

base stations in a mobile communications network in an acknowledged mode radio link control entity between a transmitting side and a receiving side, and setting a retransmission parameter so that the packet data units are not retransmitted to a first base station when receiving positive or negative status reports for sent packet data units from the receiving side. The method further includes buffering transmitted packet data units in a retransmission buffer, and receiving status reports for the sent packet data units from the receiving side. The method further includes purging from the retransmission buffer the packet data units for which positive or negative status reports have not been received, and scheduling remaining packet data units in the retransmission buffer for transmission to a second base station. The method further includes transmitting the scheduled remaining packet data units to the second base station.

Claim 5, upon which claims 6-8 are dependent, recites a system, which includes a network node connected at least to a first base station and a second base station, and user equipment connected to at least one of the first or the second base stations. The system further includes a transmitter configured to transmit packet data units for unacknowledged mode services in a handover between base stations in a mobile communications network in an acknowledged mode radio link control entity between a transmitting side and a receiving side, and a retransmission buffer configured to buffer transmitted packet data units. The system further includes a setting device configured to set a retransmission parameter so that the packet data units are not retransmitted to the first base station when receiving positive or negative status reports for sent packet data

units from the receiving side, and a receiver configured to receive the status reports for the sent packet data units from the receiving side. The system further includes a management device configured to purge from the retransmission buffer the packet data units for which positive or negative status reports have not been received and to schedule remaining packet data units in the retransmission buffer for transmission to the second base station. The transmitter is configured to transmit the scheduled packet data units to the second base station.

Claim 9, upon which claims 10-12 are dependent, recites an apparatus, which includes a transmitter configured to transmit packet data units for unacknowledged mode services in a handover between base stations in a mobile communications network in an acknowledged mode radio link control entity between a transmitting side and a receiving side, and a retransmission buffer configured to buffer transmitted packet data units. The apparatus further includes a setting device configured to set a retransmission parameter so that the packet data units are not retransmitted to the first base station when receiving positive or negative status reports for sent packet data units from the receiving side, and a receiver configured to receive the status reports for the sent packet data units from the receiving side. The apparatus further includes a management device configured to purge from the retransmission buffer packet data units for which positive or negative status reports have not been received and to schedule remaining packet data units in the retransmission buffer for transmission to the second base station. The transmitter is configured to transmit the scheduled packet data units to the second base station.

Claim 13 recites an apparatus, which includes transmitting means for transmitting packet data units for unacknowledged mode services in a handover between base stations in a mobile communications network in an acknowledged mode radio link control entity between a transmitting side and a receiving side, and setting means for setting a retransmission parameter so that the packet data units are not retransmitted to the first base station when receiving positive or negative status reports for sent packet data units from the receiving side. The apparatus further includes buffering means for buffering transmitted packet data units in a retransmission buffer, and receiving means for receiving status reports for the sent packet data units from the receiving side. The apparatus further includes purging means for purging from the retransmission buffer the data units for which positive or negative status reports have not been received, and scheduling means for scheduling remaining packet data units and the retransmission buffer for transmission to the second base station. The apparatus further includes transmitting means for transmitting the scheduled remaining packet data units to the second base station.

Thus, according to embodiments of the invention, users of streaming services experience less transmission disruptions during a handover procedure. At the same time, unnecessary packet data unit retransmissions to the original base station are avoided by using a special configuration of an acknowledged mode RLC.

As will be discussed below, the combination of Nevo and Wei fails to disclose or suggest all of the elements of the claims, and therefore fails to provide the advantages and features discussed above.

Nevo generally discloses a method for conveying signaling between a mobile station and a base station via a CDMA air interface in a GSM mobile wireless telecommunications system. The method includes generating a signaling message based on a GSM interface standard. Data link services are provided to process the message for transmission over the CDMA air interface, and the processed message is then transmitted over the CDMA air interface. Preferably, the data link services are provided by a data link layer, which produces an IS-95 message for transmission. (see Nevo at Abstract).

Wei generally discloses techniques for retransmitting data via RLP in a CDMA system with a first retransmission mechanism provided by the RLP and a second retransmission mechanism provided by an HARQ-CF. In one method, missing RLP frames are first detected. A dynamic timer is then maintained for each RLP frame detected to be missing. The dynamic timers are event-driven and have variable time durations. Each dynamic timer is updated based on events known to the receiver HARQ-CF. Fixed timers with fixed time durations may also be maintained for the missing RLP frames. Whether or not a missing RLP frame is lost is determined based on the dynamic timer and the fixed timer (if any) maintained for the RLP frame. A NAK is potentially issued for retransmission of each RLP frame deemed to be lost. (see Wei at Abstract).

Applicants respectfully submit that Nevo and Wei, whether considered individually, or in combination, fail to disclose, teach, or suggest, all of the elements of the present claims. For example, the combination of Nevo and Wei fails to disclose, teach, or suggest, at least, "transmitting packet data units for unacknowledged mode services in a handover between base stations in a mobile communications network in an acknowledged mode radio link control entity between a transmitting side and a receiving side," "setting a retransmission parameter so that the packet data units are not retransmitted to a first base station when receiving positive or negative status reports for sent packet data units from said receiving side," and "purging from said retransmission buffer the packet data units for which positive or negative status reports have not been received," as recited in claim 1, and similarly recited in claims 5, 9, and 13.

With respect to "transmitting packet data units for unacknowledged mode services in a handover between base stations in a mobile communications network in an acknowledged mode radio link control entity between a transmitting side and a receiving side," as recited in claim 1, the Office Action cited the paragraph at col. 12, lines 5-15 in Nevo as disclosing said element. (see Office Action at page 2). However, the paragraph in Nevo cited by the Office Action discloses that a GSM-CDMA data link layer 54 of the hybrid GSM/CDMA cellular communications system suspends acknowledged mode messages from a mobile station 40 to a base station subsystem 32 during a hard handover to another base station subsystem, so as to avoid message loss. Specifically, upon initiation of a handover, the base station subsystem 32 suspends the flow of radio

interface layer messages to and from the mobile station 40. (see Nevo at col. 12, lines 5-11). However, Nevo is silent as to the transmission of unacknowledged mode services in a handover between base stations in a mobile communications network in an acknowledged mode. In contrast, claim 1 of the present application recites "transmitting packet data units for unacknowledged mode services in a handover between base stations in a mobile communications network in an acknowledged mode radio link control entity between a transmitting side and a receiving side." Applicants respectfully submit that, in general, it is not practical to send unacknowledged data (such as streaming data) in an acknowledged mode since the acknowledgements cause problems for the playback of the streaming data. However, embodiments of the present invention use an acknowledged mode for transmission in a handover situation when transmitting packet data units for unacknowledged mode services.

Furthermore, with respect to "setting a retransmission parameter so that the packet data units are not retransmitted to a first base station when receiving positive or negative status reports for sent packet data units from said receiving side," as recited in claim 1, the Office Action cited the paragraph at col. 9, lines 8-22 in Nevo as disclosing said element. (see Office Action at page 2). The paragraph in Nevo cited by the Office Action discloses that the GSM-CDMA data link layer 54 provides orderly fragmentation of long radio interface layer messages, so that only the lost data link layer fragments must be retransmitted. The paragraph further discloses that if transmission of the data link layer fragments of a long radio interface layer message is preempted, the GSM-CDMA

data link layer resumes transmission of only the fragments that were not transmitted before the preemption. (see Nevo at col. 9, lines 13-22). Applicants respectfully submit that the cited paragraph does not teach anything about setting a retransmission parameter value as recited in claim 1. Instead, the cited paragraph of Nevo merely states that instead of retransmitting a whole frame, only lost fragments of a frame are retransmitted. Applicants further submit that, in a normal situation, if the retransmission parameter was not set at all, a retransmission would occur after a negative status report. Thus, according to embodiments of the present invention, after setting the retransmission parameter, there are no retransmissions at all.

Finally, with respect to "purging from said retransmission buffer the packet data units for which positive or negative status reports have not been received," as recited in claim 1, the Office Action correctly concludes that Nevo fails to disclose, teach, or suggest this element. (see Office Action at page 3). Additionally, while each of the claims of the present application have their own scope, Applicants respectfully submit that the arguments described above with respect to claim 1, equally apply to claims 5, 9, and 13.

Thus, Nevo fails to disclose, teach, or suggest, at least, "transmitting packet data units for unacknowledged mode services in a handover between base stations in a mobile communications network in an acknowledged mode radio link control entity between a transmitting side and a receiving side," "setting a retransmission parameter so that the packet data units are not retransmitted to a first base station when receiving positive or

negative status reports for sent packet data units from said receiving side," and "purging from said retransmission buffer the packet data units for which positive or negative status reports have not been received," as recited in claim 1, and similarly recited in claims 5, 9, and 13.

Furthermore, Wei does not cure the deficiencies of Nevo. With respect to "transmitting packet data units for unacknowledged mode services in a handover between base stations in a mobile communications network in an acknowledged mode radio link control entity between a transmitting side and a receiving side," and "setting a retransmission parameter so that the packet data units are not retransmitted to a first base station when receiving positive or negative status reports for sent packet data units from said receiving side," as recited in claim 1, the Office Action failed to allege that Wei discloses said elements of claim 1. (see Office Action at page 3).

Furthermore, with respect to "purging from said retransmission buffer the packet data units for which positive or negative status reports have not been received," as recited in claim 1, the Office Action cited the paragraph at col. 16, lines 39-45 in Wei as disclosing said element. (see Office Action at page 3). The paragraph in Wei cited by the Office Action discloses that a receiver purges all subpackets that have been received for an encoder packet and starts a decoding process anew. The paragraph further discloses that this autonomous transmitter HARQ-CF retransmission scheme allows a lost encoder packet to be retransmitted without waiting for a delayed NAK from a receiver RLP. (see Wei at col. 16, lines 39-45).

Applicants respectfully submit that, according to embodiments of the invention, packets data units are purged based on received status reports. The status reports may include either a positive or negative acknowledgement. In either case, there are no retransmissions. Furthermore, claim 1 recites "setting ... when receiving positive or negative status reports for sent packet data units from said receiving side," and "purging from said retransmission buffer the packet data units for which positive or negative status reports have not been received." Thus, unlike a normal situation where a retransmission occurs when a negative status report is received, the retransmission is prevented according to embodiments of the invention.

In Wei, only packets that have been properly received by the receiver (i.e. where an ACK is received) are purged. In fact, Wei discloses that a lost encoder packet is automatically retransmitted without waiting for a delayed NAK from the receiver RLP. (see Wei at col. 16, lines 41-45). There is no disclosure in Wei of purging packets where no status reports have been received, because Wei specifically discloses that all subpackets which have been received are purged. (see Wei at col. 16, lines 39-41).

Thus, Applicants respectfully submit that Wei, whether considered individually or combined with Nevo, fails to disclose, teach, or suggest, at least, "transmitting packet data units for unacknowledged mode services in a handover between base stations in a mobile communications network in an acknowledged mode radio link control entity between a transmitting side and a receiving side," "setting a retransmission parameter so that the packet data units are not retransmitted to a first base station when receiving

positive or negative status reports for sent packet data units from said receiving side," and "purging from said retransmission buffer the packet data units for which positive or negative status reports have not been received," as recited in claim 1, and similarly recited in claims 5, 9, and 13.

Therefore, for at least the reasons discussed above, the combination of Nevo and Wei fails to disclose, teach, or suggest, all of the elements of claims 1, 5, 9, and 13. For the reasons stated above, Applicants respectfully request that this rejection be withdrawn.

Claims 2-4 depend upon claim 1. Claims 6-8 depend upon claim 5. Claims 10-12 depend upon claim 9. Thus, Applicants respectfully submit that claims 2-4, 6-8, and 10-12 should be allowed for at least their dependence upon claims 1, 5, and 9, respectively, and for the specific limitations recited therein.

For at least the reasons discussed above, Applicants respectfully submit that the cited prior art references fails to disclose or suggest all of the elements of the claimed invention. These distinctions are more than sufficient to render the claimed invention unanticipated and unobvious. It is therefore respectfully requested that all of claims 1-13 be allowed, and this application passed to issue.

If for any reason the Examiner determines that the application is not now in condition for allowance, it is respectfully requested that the Examiner contact, by telephone, the applicants' undersigned attorney at the indicated telephone number to arrange for an interview to expedite the disposition of this application.

In the event this paper is not being timely filed, the applicants respectfully petition for an appropriate extension of time. Any fees for such an extension together with any additional fees may be charged to Counsel's Deposit Account 50-2222.

Respectfully submitted,

Majid S. AlBassam
Registration No. 54,749

Customer No. 32294
SQUIRE, SANDERS & DEMPSEY LLP
14TH Floor
8000 Towers Crescent Drive
Tysons Corner, Virginia 22182-2700
Telephone: 703-720-7800
Fax: 703-720-7802

KMM:ksh